



INNOVATION AND SME PROGRAMME

SHARED-COST RTD ACTION

RESEARCH AND TECHNOLOGICAL DEVELOPMENT AND DEMONSTRATION COMBINED PROJECT

<i>Report on Assessment Visit to Estonia</i>
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Figure 1: Map of Estonia



Figure 2: Estonian trout products

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List of partner acronyms

UoS:	University of Stirling
DDL:	Double Delta R&D
FEAP:	Federation of European Aquaculture Producers
USB.RIFCH:	Research Institute of Fish Culture and Hydrobiology
HRP:	Hodowla Ryb Paraszyno (Association of Polish trout farmers)
EAU:	Estonian Agricultural University
IFREMER:	French Research Institute for the Exploration of the Seas
AQIM	
SINTEF	
AVL:	Aquaculture Vaccine Ltd.
AQFT:	Aquacultur Fischtechnik GmbH
EAS:	European Aquaculture Society
EUROFISH	
AQUAPARK	

I Introduction

Partners from the CSN-INTRAN consortium visited Estonia from 15 to 19th September 2004 to conduct a rapid appraisal of the status of aquaculture in that country and signs for and barriers to innovation and technology transfer. Participating in the visit were John Bostock (University of Stirling, UK), Aleksander Hansen (SINTEF, Norway), François René (IFREMER, France), Guðmundur Örn Ingólfsson (AQIM, Iceland) and Tiit Paaver (EAU, Estonia), who acted as host.



Figure 3: The study team meeting in Estonia: From left to right - Tiit Paaver, Guðmundur Örn Ingólfsson, John Bostock, Aleksander Hansen and François René

The team visited a number of aquaculture production, teaching and research centres and met with representatives of the aquaculture industry, government, education and research sectors. Background statistics and information on the sector was provided by Tiit Paaver and materials produced by the Estonia Agricultural University and the Estonian Aquaculture Association. The team used recognised rapid appraisal techniques to understand the situation and develop dialogue with the stakeholders to explore key concerns, hopes for the future and perceived constraints.

2 Overview of aquaculture in Estonia

Estonia is a northern country where the vegetation period is short (3-4 months) and thus the water temperature is a limiting factor of fish farming. The aquaculture sector is relatively small but its production has increased steadily in recent years. In 2001, Estonia produced 467 tonnes of fisheries products, worth a value of € 1.5 million. The main species produced include trout (almost 90% of total production) and carp but there is also

a small-scale production of eel. Estonia has 25 aquaculture farms, employing about 60 people. A number of aquaculture farms grow fish for restocking. The main species concerned are salmon, trout, whitefish, pike, pike-perch and tench.

Estonian aquaculture production has been changed considerably during the last decade. (See Table 1) Total production of carp has decreased considerably since 1992, while the production of rainbow trout has shown various fluctuations. The rainbow trout farmers were primarily growing large fish although recently small demand for portion size trout has occurred. In Estonia trout has been reared in flow through ponds on river or spring water or in net cages in effluent channels of electric power stations. Trout farmers exclusively use formulated feeds while carp farmers still apply lower stocking densities to utilise natural food production of the ponds.



Figure 4: Harjanurme trout farm and tourist fishery
exclusively use formulated feeds while carp farmers still apply lower stocking densities to utilise natural food production of the ponds.

Table 1. Estonian fish farming production (t) in 1992-2002

	1992	93	94	95	96	97	98	99	00	01	02
Species total of which	613.6	348.8	417.4	316.8	272.6	259.7	308.8	176.6	360	466.6	356.1
European Eel	0	0	0	0	0	0	0	0	0	0.3	12.5
Crayfish	0	0	0	0	0	0	0	0	0	.3	2.6
Carp	234.4	43.3	135.7	30	60.9	28	23.1	30	47	51.7	52.6
R. Trout	379.1	297.1	278.1	278	194.3	227	285.3	146.6	313	411.8	286.7

Source: Statistical Office of Estonia

Salmon is an endangered and rare species in Estonia due to the loss of spawning sites after dam construction on the rivers and also because of overfishing. Between 1996 and 1998, state owned fish farm, Polula Fish Rearing Centre, in northern Estonia was responsible for the production and release of 370,000 salmon juveniles into the wild in the hope that wild stocks would recover. Overall, in Estonia there has been a general increase in the interest for the production of many various juveniles of commercially important native species (sea trout, brown trout, whitefish (*Coregonus*), pike, pike-perch, tench) for stocking into the natural waters. This trend is continuing today.



Figure 5: Facilities in the salmon hatchery in Põlula

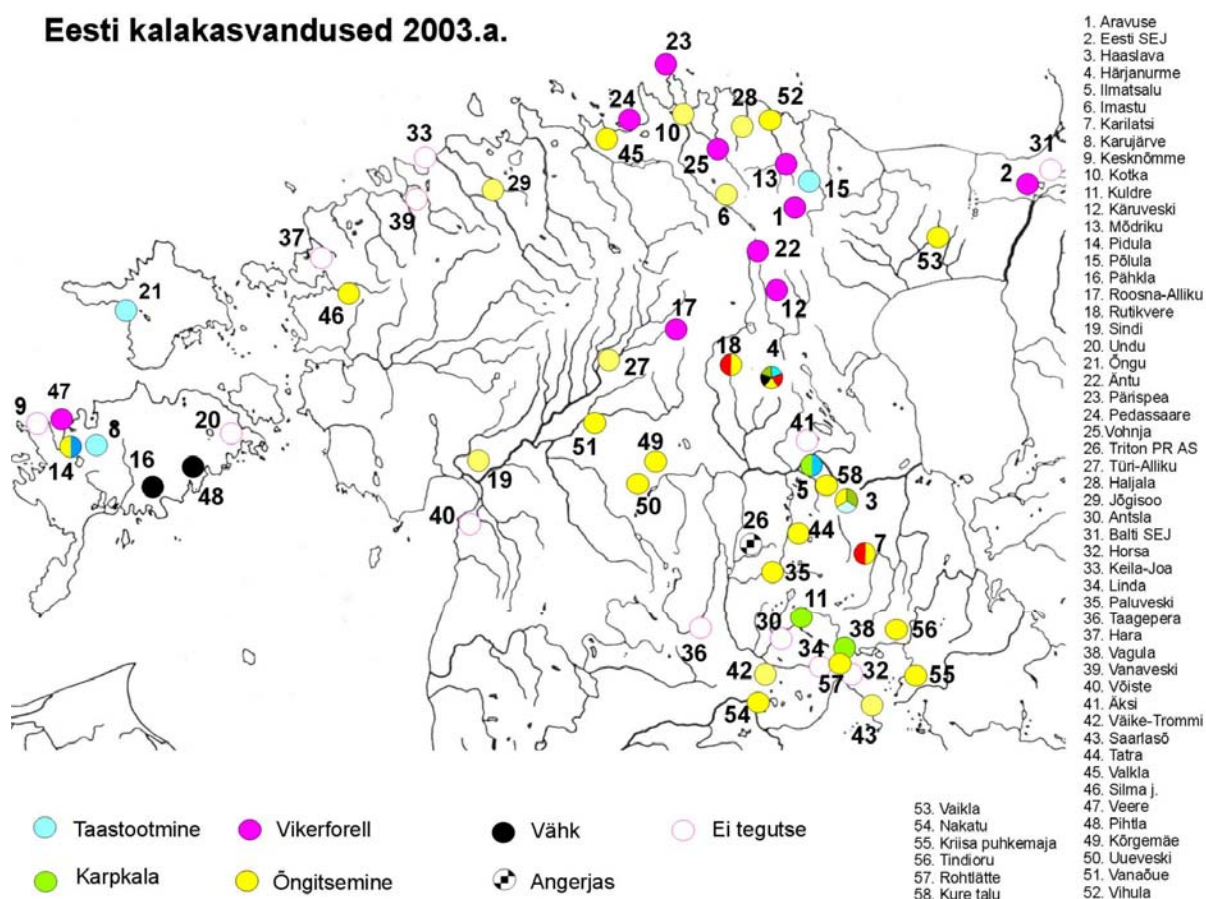


Figure 6: Location of fish farms and fisheries in Estonia

Financial support is available from the Financial Instrument for Fisheries Guidance (FIG) to restructure the EU fisheries sector. € 12.5 million has been earmarked for the fishery sector of which half will be dedicated to investment in the processing of fisheries products, aquaculture production as well as fishing port facilities and inland fisheries.

3 Key issues identified by the visit

The visit found a mixed situation. There are a small number of technically advanced farms already using some water treatment and recirculation techniques, and many more traditional ones that are struggling to adapt to the new market conditions. One traditional carp farm was visited which used to employ 8 workers but now has only one. The owner is still paying back the cost of the farm to the state, but production capacity is declining due to the encroachment of reeds, which cannot be controlled with the small staff numbers and environmental controls. On the other hand, a private trout farm and eel farm were expanding and introducing new technologies.

Language is a barrier to innovation transfer as many of the farmers do not speak other European languages. The sector has also been constrained by lack of educational facilities, especially at the higher level. The Estonian Agricultural University has only recently re-started aquaculture courses.

Whilst not visited during the study period, Estonia is well known for a substantial fish processing industry, mostly based around the Baltic fisheries (herring etc). There is some



Figure 7: Eels at the Triton fish farm

processing of Estonian trout, but relations between the aquaculture industry and the processing sector appeared weak and local product is reported to be downgraded in comparison with Norwegian product, rather than sold at a premium.

Although small, Estonia has an active fish farmers association and should benefit from an expanding economy. Although well-placed to trade with Russia, poor experiences appeared to discourage the industry from targeting more Eastern markets. Latvia however, was seen as a potential market for Estonian aquaculture products.

A key constraint was considered to be the lack of knowledge and confidence in the sector on the part of banks. Farmers find it almost impossible to access commercial financing. Insurance quotations have also been unrealistic for farms.

4 Recommendations for further action

For the smaller fish farms, such as the carp farm visited, activity diversification is probably the best strategy to adopt. There should be scope for angling, eco-tourism and other country activities at aquaculture sites. The carp farm already included overnight chalets and there was scope for improving facilities.

For the main aquaculture producers, there is a need to invest in efficiency improvements. Funding schemes such as FIG are available in Estonia and support is required to enable farmers to access these funds and for the government institutions to develop the strategic guidelines and expertise to evaluate proposals.

With relatively limited experience of newer aquaculture technologies in Estonia, some help may be needed on assessing and introducing innovations from outside the country. This is an area in which the Aquainnovation network should be able to help.



Figure 8: Carp farm with small chalet facilities

There is a need to better link the aquaculture sector with the processing sector to help both develop new products and enhance value through better attention to market needs and opportunities. It is recommended that the Estonian Fish Farmers Association.

These themes will be taken forward in the forthcoming project actions:

- Pond workshop - discuss issues with wider audience and promote innovation and technology transfer
- Health management training course to help improve local practice and access to vaccines and therapeutants
- Identify potential candidates for visit to Norway and Aquanor to learn about marketing, quality control and product development
- Develop website materials to support technology transfer and learning about new approaches and innovations
- Identify potential sources of funds to support the introduction of new technologies and practices and provide guidance on how to access them
- Identify candidates able to adopt closed system technologies and support through training course in Hungary and study visit to Germany

ANNEXES

1. Annex 1: Itinerary

Annex I: Itinerary

Wednesday 15/9/04

Arrival Tallin

- Meeting in the Ministry of Agriculture - Staff of the dept of fisheries of the Ministry (A.Jagor)

Travel to Polula

- Discussion about fish farming for restocking in Estonia - MSc. students H.Tuus, K.Klaas

Accommodation - Guestrooms of Polula Fish Rearing Center

Thursday 16/9/04

Meeting in Polula

- At 10:00 a.m. meeting at Polula Fish Rearing Centre with the leading staff of the centre- Director Juri Lunin and Vicedirector Ene Saadre.

Travel to Härjanurme fish farm

- Discussion about the Estonian fish farming with Aarne Liiv, ex president of the Estonian Fish Farmers Association 14.00 hrs followed by lunch

Travel to Tartu - accommodation in Tartu Park Hotel.

Friday 17/9/04

Meeting at EAU 09.00 hrs

- 1) Discussion about fish farming in Estonia, about education and research in aquaculture in the department of aquaculture (EAU) with Staff of the dept. of aquaculture (R.Gross, P.Zingel, Marje Aid, Tiiu, Tohver), ex-president of EFFA Mrs. Mare Puhk, consultant of aquaculture Jüri Kasesalu, students of aquaculture, Mati Motte, Piret Ilves - PRIA,

Visit to the recirculation eel farm with Raivo Puurits, from 16.00-21.00 hrs.

Saturday 18/9/04

09.00 Departure to Tallinn

10.00 to 12.00-Visit to Carp farm from - Riina Kalda

15.00 Arrival Tallin - Meeting with Aivar Pehme, Estonian Aquaculture Association

Overnight accommodation in Tallin

Sunday 19/9/04

Departures from Tallinn